



Addressing ADA Accessible Facilities on Road, Street, and Highway Projects

I. Introduction

A. Purpose

To revise Washington State Department of Transportation (WSDOT) policies to address ADA accessible facilities in all projects, including preservation projects and add detectable warning surfaces to all sidewalk ramps or trail crossings.

B. References

Design Manual, M 22-01, WSDOT

Accessible Rights-of-Way, a Design Guide, U.S. Access Board, Washington D.C. 1999

Accessible Sidewalks and Street Crossings – an informational guide,
USDOT, FHWA 2003

Designing Sidewalks and Trails for Access, Part 1, Review of Existing Guidelines and Practices, USDOT, FHWA 1999

Designing Sidewalks and Trails for Access, Part II, Best Practices Design Guide, USDOT, FHWA, 2003

Code of Federal Regulations 49 CFR Parts 27 and 35

C. Background

ADA compliant facilities are required on projects that alter the roadway. According to the United States Department of Justice (DOJ) Technical Assistance Manual, “resurfacing beyond normal maintenance” is an alteration; construction limited in scope to a spot repair, such as patching potholes, is considered maintenance and does not trigger additional access retrofit requirements (US DOJ, 1993c). In *Kinney v. Yerusalim*, a federal court ruled that because a street and its curb ramps are interdependent facilities, alteration of a street triggers the installation of curb ramps. Since pedestrian facilities must be accessible to persons with disabilities, it is necessary to comply with current ADA requirements. The U.S. Access Board’s suspension on installing detectable warnings at pedestrian entrances into traffic lanes has expired. The only acceptable warning is the truncated dome.

D. Discussion

FHWA expressed their concern that WSDOT's policy needed to be revised to comply with the U.S. Department of Justice ADA standards. WSDOT acknowledges the need and is implementing policy changes to address the issue by this supplement to Design Manual Chapters 325, 340, 430 and 1025.

The most significant impact is to the P1 pavement preservation program. Paving projects that propose resurfacing of Hot Mix Asphalt (HMA) or Concrete are required to address ADA issues in accordance with this supplement. Bituminous Surface Treatment projects do not trigger a requirement for addressing ADA compliance, however pedestrian access improvements are not prohibited from these projects.

Evaluate existing sidewalk ramps in accordance with the attached Supplement Figure 1025-10. If the ramp meets the ADA minimums for Preservation Projects, no further action is required at this time beyond the installation of the truncated domes, where truncated domes are not present. If the ramp does not meet the ADA minimums, then it will need to be removed and constructed or modified to meet the current standards (the same standards as Improvement Projects). If no sidewalk ramp exists at locations with existing curb, gutter, and sidewalk, then a new ramp will need to be constructed to provide an accessible route.

These requirements do not provide new funding sources for the work. The additional costs to the P1 program will need to be managed within the current funding and allocations.

Regardless of jurisdictional responsibility for the facilities, when a project affects the road surface the project owner is to install ADA devices as indicated above. For instance, if a WSDOT preservation (paver) or improvement project, abuts non-ADA compliant ramps, the WSDOT project is responsible for updating the ramps. In the case where a city, town, or county preservation (paver) or improvement project abuts non-ADA compliant ramps, the local agency is responsible for updating the ramps. On joint public works projects, the funding responsibility is subject to negotiation.

E. Implementation

This change is effective on the date of this supplement and will expire when the changes are incorporated in the *Design Manual*.

Projects advertised after September 1st, 2004 shall meet the requirements stated in this supplement. Projects currently under development or in construction must be evaluated to determine if it is feasible and reasonable to address ADA on the project.

II. Instructions

- A. Replace *Design Manual Figures 325-3, 325-4, 325-5, 325-6, & 325-7* with pages 8-12 in this supplement.
- B. Replace the definition for *Pavement widening projects* in *340.03(1) Projects Types* with the following:

Pavement widening projects are expansion of the roadway surface for vehicular use and may involve earthwork, drainage, and paving elements. These projects are considered alterations of the roadway and must address ADA accessibility for Pedestrians. See Chapter 1025 for guidance on pedestrian facilities. Potential project types are:

- Turn lane — Addition of a new channelized turn bay at an intersection.
- Pullout — Pavement widening to provide auxiliary highway uses including transit stops, Washington State Patrol (WSP) enforcement pullouts, snow chain-up areas, and maintenance vehicle turnouts.
- Expansion — Widen at intersection corners, lengthen existing channelized turn bay, widening shoulders, and flattening approach taper. This type of work is not anticipated for main line sections on Interstate freeways.
- Median crossover — Restricted-use median crossover on separated highways for emergency or maintenance use.

- C. Replace the definition for *Rechannelize existing pavement projects* in *340.03(1) Projects Types* with the following:

Rechannelize existing pavement projects alter the use of the roadway without additional widening. These projects may add, delete, or modify channelization features, and may include reduction of existing shoulder or lane widths. Projects that change the traffic configuration by reducing shoulders to add turn lanes are considered an alteration of the existing roadway and have the same requirements for preservation projects as it relates to pedestrian facilities for ADA accessibility. See Chapter 1025 for guidance on pedestrian facilities. Potential project types are:

- Pavement markings — Develop added storage, additional lanes, or altered lane alignment. This work may modify tapers or radii, modify painted islands, channelize bicycle lanes, or preferential-use lanes or shoulders.
- Raised channelization — New or altered raised curbing to channelization islands to enhance guidance, curtail violation or misuse, or introduce access control.

D. Add the following after 430.08 *Fill Slopes and Ditch Inslopes*

430.09 Bike and Pedestrian

Sidewalk ramps must be addressed for ADA compliance on projects that include HMA or PCCP overlays or inlays. Evaluate existing sidewalk ramps for compliance. Construct ADA compliant sidewalk ramps as required.

On Interstate Pavement Rehab./Resurf. Projects (see Figure 325-4) that include HMA or PCCP overlays or inlays on ramps or crossroads, sidewalk ramps must be addressed for ADA compliance. Other bicycle and pedestrian elements are design exceptions on HMA or PCCP overlays or inlays on Interstate ramps or crossroads.

See Chapter 1025 for guidance on pedestrian facilities.

E. Renumber 430.09 *Intersections* to:

430.10 Intersections

F. Renumber 430.10 *Bridges* to:

430.11 Bridges

G. Renumber 430.11 *Documentation* to:

430.12 Documentation

H. Add the following to 1025.03 *Definitions*

Accessible route A continuous unobstructed pedestrian route that connects accessible elements and spaces of a building or facility. Exterior accessible routes include parking access aisles, sidewalk ramps, crosswalks at vehicular ways, walkways, ramps, paths, trails, and lifts.

Detectable warning A tactile surface that can be detected by vision impaired pedestrians. The detectable warning signals a change in the pedestrian environment, where the pedestrian is moving into a vehicular traffic area, railroad crossing, or vertical drop off. The only acceptable warnings are truncated domes.

Landing A level area (not steeper than 2% slope) at the top and bottom of a pedestrian ramp.

Truncated domes Truncated domes are small raised protrusions of between 7/8 inch and 1 & 7/16 inch in diameter and 3/16 inch in height arranged in a distinctive pattern that is readily detected and recognized by a vision impaired person using a cane for guidance. The Standard Plans show the appropriate pattern and dimensions. A contrast in color is required between the domes and the surrounding surface.

I. Replace 1025.04(1) *General* with the following:

(1) General

Pedestrian facilities are required along and across most sections of state highways, county roads, and city streets and are an integral part of the transportation system. Walkways and other pedestrian facilities are considered in the project scoping phase. Factors that might preclude providing pedestrian facilities in a project are as follows:

- Pedestrians are prohibited by law from using the facility.
- The cost of the improvements is excessive and disproportionate to the original need or probable use (as a guide, more than 20% of the project estimate without the added pedestrian facility costs). In these instances evaluate options to trim the scope of the pedestrian improvements to a more reasonable level.
- Low population density or other site specific factors indicate that there is no need.

Pedestrians with vision impairments are not always able to discern when the pedestrian walkway crosses a roadway. The installation of detectable warnings is required on the surface of the pedestrian route at the entrance to a vehicular roadway or railroad crossing. Detectable warnings are not required at driveways where vehicular traffic volumes are minor and speeds are low. Responsibility for ADA compliance on pedestrian crossings of driveways beyond the curb is consistent with jurisdictional responsibility established in RCW 47.24.020(2). Detectable warnings are also not necessary at roadway crossings when the pedestrian travel is on the adjacent shoulder and not on a separate walkway.

Pedestrian facilities must conform to current ADA standards as follows:

Improvement Projects address the construction of a new roadway or produce major modifications to an existing roadway. In these projects, the pedestrian's needs are assessed and included, when applicable. Develop the pedestrian facilities consistent with the requirements listed in Figure 1025-10, using the ADA Standards for Improvement Projects column.

Preservation Projects on state highways (paving and resurfacing projects in cities and towns) that address the need to maintain the structural adequacy of an existing roadway are considered alterations of the roadway. These projects must also address the pedestrian's needs and include, to the maximum extent feasible, access for persons with disabilities. If an existing sidewalk ramp adjacent to the roadway, meets the ADA minimums for Preservation Projects in the Preservation Projects column in Figure 1025-10, no further action is required at this time beyond the installation of the truncated domes, where truncated domes are not present. If an existing ramp does not meet the ADA minimums, then it will need to be removed and constructed or modified to meet the standards for Improvement Projects. It is not always feasible or even possible to build pedestrian facilities to full ADA standards (as shown in the column ADA Standards for Improvement Projects) in preservation projects or alterations. When this is the case, the ADA Minimums for Preservation Projects are applicable. Document to the Design Decisions Package, all instances where ADA Standards are not provided for Improvement Projects. When a preservation project is going through an area with pedestrian facilities that meet these requirements, no other action is necessary at this time. The agency (or agencies) initiating the project is responsible for funding this work.

The ADA standards for preservation and improvement projects are shown in Figure 1025-10.

For additional guidance contact the Assistant State Design Engineer for the region.

J. Replace 1025.07 *Pedestrian Facility Design (2) Pedestrian Travel Along Streets and Highways* section (a) with the following:

(a) General. When city streets form a part of the state highway system within the corporate limits of cities and towns, the city has full responsibility for and control over any such street beyond the curbs and if no curb is installed, beyond that portion of the highway used for highway purposes. See RCW 47.24.020(2). Proposed projects that will damage or remove existing sidewalks or other walkways within the city's jurisdiction must include reconstruction of these facilities. A construction permit may be required for an agency to perform work beyond their jurisdictional responsibility. Examples of various types of pedestrian walkways are shown in Figures 1025-2a and 1025-2b.

The minimum clear width required by a person in a wheelchair or a walker is 3 feet for the evaluation of existing facilities. New facilities are to be developed in accordance with the *Design Manual*. Utility poles and other fixtures located in the sidewalk can be obstacles for pedestrians with disabilities. Provide an ADA-compliant route around these obstructions. When relocation of these utility poles and other fixtures is necessary in a project, determine the impact of their new location on any pedestrian walkways. Utility vaults and junction boxes with special lids are used for installations in sidewalks to reduce tripping hazards and improve traction. Improvement projects might provide opportunities to eliminate existing utilities that are obstructions in the pedestrian route.

Hanging or protruding objects within the walkway might also present unknown obstacles for pedestrians with visual impairments. The minimum vertical clearance for objects overhanging a walkway, including signs, is 7 feet. Objects that protrude more than 4 inches into the walkway are obstacles and warning devices and other countermeasures are necessary.

Where the walkway is located behind guardrail, protruding guardrail bolts are cut off or a rub rail is installed to prevent snagging on the bolts. These construction requirements are specified in the contract.

Provide a smooth finish to vertical concrete surfaces adjacent to a pedestrian facility to prevent snagging or abrasive injuries from accidental contact with the surface.

Item	ADA Standards for Improvement Projects (New, Reconstruction or Modification)	ADA Minimums for Evaluating Existing Facilities on Preservation Projects (Resurfacing or Paving Projects)
Sidewalk ramps		
Truncated Domes	Bottom 2 ft of ramp	Bottom 2 ft of ramp
Contrasting Colors	Yes	Yes
Landings ¹ (Length)	48 inches Min. ²	36 inches Min. ²
Longitudinal Slopes	12H:1V (8%)	8H:1V ³
Cross Slopes	48H:1V (2%)	Minimum feasible
Width	48 inches ²	36 inches ²
Flare Side Slopes	10H:1V ⁴	10H:1V
Accessible Routes		
Width	48 inches ⁵	36 inches ⁵
Longitudinal Slopes ⁶	12H:1V (8%)	Not to exceed the grade of the adjacent roadway ⁷
Cross Slopes	48H:1V (2%)	Minimum feasible
Ramps^{8, 9}		
Landings ¹⁰ (Length)	60 inches ²	60 inches ²
Longitudinal Slopes	12H:1V (8%) ⁶	8H:1V ³
Cross Slopes	48H:1V (2%)	Minimum feasible
Width	44 inches	36 inches
Max. Rise Btwn. Landings.	30 inches	30 inches

Notes:

1. The slope of the gutter pan or roadway surface at the bottom of ramp cannot exceed 20H:1V.
2. The width of the landing shall not be less than the ramp width.
3. 10H:1V to 12H:1V is allowed for rises up to 6 inches, 8H:1V to 10H:1V allowed for rises up to 3 inches.
4. Exception: Where the width of the walking surface at the top of the ramp and parallel to the run is less than 48", the maximum side slope shall be 12H:1V.
5. If the width is less than 60", passing spaces at least 60" x 60" shall be provided at intervals not to exceed 200'.
6. If accessible route is adjacent to a roadway, then the slope is allowed to match the profile of the road.
7. Running slope can exceed grade of adjacent roadway provided it is less than 20H:1V.
8. A ramp in this context is on a walkway on a separate alignment and does not abut a roadway.
These ramps have slopes greater than 20H:1V.
9. Ramps shall have handrails with the exception of curb ramps.
10. Landings required at top and bottom of ramp.

ADA Requirements
Figure 1025-10

Project Type		Bridges												Barriers					
Design Elements	Project Type	Horiz. Align.	Vert. Align.	Lane Width	Shldr Width (13)	Median Width	On/Off Conn.	Cross Slope Lane	Cross Slope Shldr	Fill/Ditch Slopes	Clear Zone	Sign (10)	Delin. (9)	Bike & Ped.	Lane Width	Shldr Width	Structural Capacity	Term. & Std Trans. Section (12)	Bridge Rail Run (14)(19)
(1-1) Preventive Maintenance																			
	Pavement Restoration																		
(1-2) Diamond Grinding																			
(1-3) Milling with HMA Inlays																			
(1-4) Nonstructural Overlay																			
	Pavement Rehab./Resurf.																		
(1-5) HMA Structural Overlays		EU	DE	F	F	F(17)	DE	F	EU	F	EU	F	F						
(1-6) FCCP Overlays		EU	DE	F	F	F(17)	DE	F	EU	F	EU	F	F						
(1-7) Dowel Bar Retrofit		EU	DE	F	F	F(17)	DE	DE	F	EU	F	F	DE						
	Bridge Rehabilitation																		
(1-8) Bridge Deck Rehabilitation																			
	Safety																		
(1-9) Median Barrier																			
(1-10) Guardrail Upgrades																			
(1-11) Bridge Rail Upgrades																			
	Reconstruction (16)																		
(1-12) New/Reconstruction		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F

Not Applicable
F Full design level. See Chapter 440.
DE Design Exception to full design level.
EU Evaluate Upgrade to full design level.

(6) Applies only to bridge end terminals and transition sections.
(9) Continuous shoulder rumble strips required in rural areas. See Chapter 700.
(10) See Chapter 820.
(11) See Chapter 1120.
(12) Impact attenuators are considered as terminals.
(13) See Chapters 440 and 640.
(14) Includes crossroad bridge rail. See Chapter 710.

(16) For design elements not in the matrix headings, apply full design level as found in the applicable chapters and see 325.03(2).
(17) DE for existing acceleration/deceleration lanes when length meets posted freeway speed and no significant accidents. See Chapter 940.
(19) The funding sources for bridge rail are a function of the length of the bridge.

(22) Upgrade barrier, if necessary, within 200 ft of the end of the bridge.

Project Type		Ramps and Collector Distributors												Cross Road								Barriers			
		Ramp Terminals						Barriers						Cross Road				Barriers							
		Vert. Align.	Lane Width	Shdr Width	Cross Slope Conn.	Cross Shdr Width	Shdr Access	Fill Ditch Slopes	Limited Clear Zone	Sign., Del. Illumin.	Vertical Clear. (11)	Bike & Ped.	Turn Radii	I/S Sight Dist.	Term. & Trans. Section (12)	Bridge Rail (14)(19)	Lane Width	Shdr Width	Fill/ Ditch Slopes	Limited Access Zone	Vert. Clear. Illumin. (10)	Sign., Del. Illumin. (11)	Ped. & Bike	Term. & Trans. Section (12)	Bridge Rail (14)(19)
Design Elements	⇒	Horiz. Align.	Vert. Align.	Lane Width	Shdr Width	Cross Slope Conn.	Cross Shdr Width	Shdr Access	Fill Ditch Slopes	Limited Clear Zone	Sign., Del. Illumin. (9)(10)	Bike & Ped.	Turn Radii	I/S Sight Dist.	Term. & Trans. Section (12)	Bridge Rail (14)(19)	Lane Width	Shdr Width	Fill/ Ditch Slopes	Limited Access Zone	Vert. Clear. Illumin. (10)	Sign., Del. Illumin. (11)	Ped. & Bike	Term. & Trans. Section (12)	Bridge Rail (14)(19)
(2-1) Preventive Maintenance																									
Pavement Restoration																									
(2-2) Diamond Grinding																									
(2-3) Milling with HMA Inlays																									
(2-4) Nonstructural Overlay																									
Pavement Rehab./Resurf.																									
(2-5) HMA Structural Overlays		EU	DE	F	F	F(17)	F	EU	F	F(15)	F	F	F	F	F	DE	DE	F	F	F(15)	F	M	F	F	F
(2-6) PCCP Overlays		EU	DE	F	F	F(17)	F	EU	F	F(15)	F	F	F	F	F	DE	DE	F	F	F(15)	F	M	F	F	F
(2-7) Dowel Bar Retrofit		DE	DE	F	F	F(17)	DE	F	F	F(15)	DE	F	F	F	F	F	F	F	F	F(15)	F	F	F	F	F
Bridge Rehabilitation																									
(2-8) Bridge Deck Rehabilitation																									
Safety																									
(2-9) Guardrail Upgrades																									
(2-10) Bridge Rail Upgrades																									
Reconstruction (16)																									
(2-11) New/Reconstruction		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F

Not Applicable

F Full design level. See Chapter 440.

M Modified design level. See Chapter 430.

DE Design Exception to full design level.

EU Evaluate Upgrade to full design level.

(6) Applies only to bridge and terminals and transition sections.

(9) Continuous shoulder rumble strips required in rural areas. See Chapter 700.

(10) See Chapter 820.

(11) See Chapter 1-120.

(12) Impact attenuators are considered as terminals.

(14) Includes crossroad bridge rail. See Chapter 710.

(15) EU for signing and illumination.

(16) For design elements not in the matrix headings, apply full design level as found in the applicable chapters and see 325.03(2).

(17) DE for existing acceleration/deceleration lanes when length meets posted freeway speed and no significant accidents. See Chapter 940.

(19) The funding sources for bridge rail are a function of the length of the bridge.

Consult programming personnel.

(22) Upgrade barrier, if necessary, within 200 ft of the end of the bridge.

↳ Project Type		Bridges (11)												Intersections			Barriers								
Design Elements	→	Horiz. Align.	Vert. Align.	Lane Width	Shdr. Conn.	Lane Trans-shl.	On/Off Conn.	Median Width	Cross Slope Lane	Fill/ Ditch Slopes	Access Zone (3)	Clear Zone (18)	Sign. Del. Illumin.	Basic Safety	Bike & Ped.	Lane Width	Shdr. Width	Vertical Clearance	Structural Capacity	Turn Radii	Angle	I/S Sight Dist.	Temp. & Section	Std Run	Bridge Rail (14)(19)
Preservation																									
Roadway		DEF	DEF	DEF	DEF	DEF	DEF	DEM	DEM	DEM	DEF	DEF	DEF	DEF	DEF	DEF	DEM	DEM	DEM	DEM	F	B	B	F	
(3-1) Non-interstate Freeway		DEM	DEM	DEM	DEM	DEM	DEM	DEM	DEM	DEM	DEM	DEM	DEM	DEM	DEM	DEM	DEM	DEM	DEM	DEM	F	B	B	F	
(3-2) HMA/PCC/BST Overlays		DEM	DEM	DEM	DEM	DEM	DEM	EUM	EUM	EUM	DEM	DEM	DEM	DEM	DEM	DEM	DEM	DEM	DEM	DEM	F	B	B	F	
Structures																									
(3-4) Bridge Replacement		F (2)	F (2)	F (2)	F (2)	F	F (2)	F (2)	F (2)	F (2)	F (2)	F (2)	F (2)	F (2)	F (2)	F (2)	F (2)	F (2)	F (2)	F (2)	F	F (2)	F	F	
(3-5) Bridge Deck Rehab																							F (6)	F (22)	F
Improvements (16)																									
Mobility																									
(3-6) Non-interstate Freeway		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	
(3-7) Urban		F (2)	F (2)	F (2)	F (2)	F	F (2)	F (2)	F (2)	F (2)	F (2)	F (2)	F (2)	F (2)	F (2)	F (2)	F (2)	F (2)	F (2)	F (2)	F	F (2)	F	F	
(3-8) Rural		F (2)	F (2)	F (2)	F (2)	F	F (2)	F (2)	F (2)	F (2)	F (2)	F (2)	F (2)	F (2)	F (2)	F (2)	F (2)	F (2)	F (2)	F (2)	F	F (2)	F	F	
(3-9) HOV		F (2)	F (2)	F (2)	F (2)	F	F (2)	F (2)	F (2)	F (2)	F (2)	F (2)	F (2)	F (2)	F (2)	F (2)	F (2)	F (2)	F (2)	F (2)	F	F (2)	F	F	
(3-10) Bike/Ped. Connectivity		(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	
Safety																									
(3-11) Non-interstate Freeway		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	
(3-12) Intersection (1)		M(4)	M(4)	M(4)	M(4)	F (17)	M(4)	M(4)	M(4)	M(4)	M(4)	M(4)	M(4)	M(4)	M(4)	M(4)	M(4)	M(4)	M(4)	M(4)	M(4)	M(4)	M(4)	M(4)	
(3-13) Corridor (124)																									
(3-14) Median Barrier																									
(3-15) Guardrail Upgrades																									
(3-16) Bridge Rail Upgrades																									
(3-17) Risk: Roadsideside																									
(3-18) Risk: Sight Distance																									
(3-19) Risk: Roadway Width																									
(3-20) Risk: Realignment																									
Economic Development																									
(3-21) Freight & Goods (Frost Free) (8)		F (2)	F (2)	F (2)	F (2)	F	F (2)	F (2)	F (2)	F (2)	F (2)	F (2)	F (2)	F (2)	F (2)	F (2)	F (2)	F (2)	F (2)	F (2)	F	F	F		
(3-22) Four-lane Trunk System		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	
(3-23) Rest Areas (New)		F (2)	F (2)	F (2)	F (2)	F	F (2)	F (2)	F (2)	F (2)	F (2)	F (2)	F (2)	F (2)	F (2)	F (2)	F (2)	F (2)	F (2)	F (2)	F	F	F		
(3-24) Bridge Restrictions																									
(3-25) Bike Routes (Shelters)																									

(1) Collision Reduction (HAL, HAC, PAL), or Collision Prevention (At-Grade Removal, Signalization & Channelization). Specific deficiencies that created the project must be upgraded to design level as stated in the matrix.

(2) Modified design level may apply based on a corridor or project analysis.

(3) If designated as LIA acquired in the Access Control Tracking System, limited access requirements apply. If not, managed access applies. See 325.03(5).

(4) Full design level may apply based on a corridor or project analysis. See 325.03(5).

(5) For bike/pedestrian design see Chapters 1020 and 1025.

(6) Applies only to bridge end terminals and transition sections.

(7) 4 ft minimum shoulders.

(8) If all weather structure can be achieved with spot digouts and overlay, modified design level applies to NHS highways and basic design level applies to non-NHS highways.

(11) See Chapter 1120.

(12) Impact attenuators are considered as terminals.

(13) Includes crossroad bridge rail. See Chapter 710.

(14) Includes crossroad bridge rail. See Chapter 710.

(15) See Chapter 1120.

(16) For design elements not in the matrix headings, apply full design level as found in the applicable chapters and see 325.03(2).

(17) DE for existing acceleration/deceleration lanes when length meets posted freeway speed and no significant accidents. See Chapter 940.

(18) On managed access highways within the limits of incorporated cities and towns. City and County Design Standards apply to areas outside the curb or outside the paved shoulder where no curb exists.

(19) The funding sources for bridge rail are a function of the length of the bridge. Consult programming personnel.

(20) Applies to median elements only.

(21) Analyses required. See 325.03(5) for details.

(22) Upgrade barrier, if necessary, within 200 ft of the end of the bridge.

(23) See description of Guardrail Upgrades Project Type. 325.03(1) regarding length of need.

(24) Apply full design level to projects that realign or reconstruct significant portions of the alignment.

(25) Sidewalk ramps must be addressed for ADA compliance. See Chapter 1025.

Design Matrix 3

Main Line NHS Routes (Except Interstate)
Figure 325-5

Project Type	Ramps and Collector Distributors												Cross Road											
	Ramp Terminals						Barriers						Ramp Terminals						Barriers					
Design Elements	Horiz. Align.	Lane Width	Shdr. Width	Lane On/off Conn.	Cross Slope Lane	Clear Zone (3)	Sign. Illumin.	Bike & Ped.	Turn Radii	I/S Sight Dist.	Term. & Trans. Section (12)	Bridge Rail (14)(19)	Lane Width	Shdr. Width	Fill Ditch Slopes	Access (3)	Sign., Basic Safety	Clear Zone	Ped. & Bike Safety (11)	Vert. Clear. (11)	Term. & Std. Run Section (12)	Bridge Rail (14)(19)		
Preservation																								
Roadway																								
(4-1) Non-Interstate Freeway	Def/F	Def/F	Def/F	Def/F	Def/F	Def/F	Def/F	Def/F	Def/F	Def/F	Def/F	Def/F	B	B	F	Def/F	Def/F	Def/F	B	B	M	B	B	F
(4-2) HMA/PCCPBST Overlays/Ramps													B	B	F				B	B	M	B	B	F
Structures																								
(4-3) Bridge Replacement	F(2)	F(2)	F(2)	F(2)	F(2)	F(2)	F(2)	F(2)	F(2)	F(2)	F(2)	F(2)	F	F	F	F	F	F	F(2)	F(2)	F(2)	F	F	F
(4-4) Bridge Deck Rehab.													B	B	F				B(6)	F(22)	F	B	B	M
Improvements (16)																								
Mobility																								
(4-5) Non-Interstate Freeway	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
(4-6) Urban	F(2)	F(2)	F(2)	F(2)	F(2)	F(2)	F(2)	F(2)	F(2)	F(2)	F(2)	F(2)	F	F	F	F	F	F	F	F(2)	F(2)	F(2)	F	F
(4-7) Rural	F(2)	F(2)	F(2)	F(2)	F(2)	F(2)	F(2)	F(2)	F(2)	F(2)	F(2)	F(2)	F	F	F	F	F	F	F	F(2)	F(2)	F(2)	F	F
(4-8) HOV/Bypass	F(2)	F(2)	F(2)	F(2)	F(2)	F(2)	F(2)	F(2)	F(2)	F(2)	F(2)	F(2)	F	F	F	F	F	F	F	F(2)	F(2)	F(2)	F	F
(4-9) Bike/Ped. Connectivity	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	F	F	F	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)
Safety																								
(4-10) Non-Interstate Freeway	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	M	F
(4-11) At Grade (1)(25)	F(2)	F(2)	F(2)	F(2)	F(2)	F(2)	F(2)	F(2)	F(2)	F(2)	F(2)	F(2)	F	F	F	F	F	F	F	F(2)	F(2)	F(2)	F	F
(4-12) Intersection (1)	F(2)	F(2)	F(2)	F(2)	F(2)	F(2)	F(2)	F(2)	F(2)	F(2)	F(2)	F(2)	F	F	F	F	F	F	F	F	M	F	F	F
(4-13) Guardrail Upgrades																								
(4-14) Bridge Rail Upgrades																								
(4-15) Risk: Roadsides																								
(4-16) Risk: Sight Distance	F(M(2))	F(M(2))	F(M(2))	F(M(2))	F(M(2))	F(M(2))	F(M(2))	F(M(2))	F(M(2))	F(M(2))	F(M(2))	F(M(2))	F	F	F	F(M(2))	F(M(2))	F(M(2))	F(M(2))	F(M(2))	F(M(2))	F(M(2))	F	
(4-17) Risk: Roadway Width	F(M(2))	F(M(2))	F(M(2))	F(M(2))	F(M(2))	F(M(2))	F(M(2))	F(M(2))	F(M(2))	F(M(2))	F(M(2))	F(M(2))	F	F	F	F(M(2))	F(M(2))	F(M(2))	F(M(2))	F(M(2))	F(M(2))	F(M(2))	F	
(4-18) Risk: Realignment	F(M(2))	F(M(2))	F(M(2))	F(M(2))	F(M(2))	F(M(2))	F(M(2))	F(M(2))	F(M(2))	F(M(2))	F(M(2))	F(M(2))	F	F	F	F(M(2))	F(M(2))	F(M(2))	F(M(2))	F(M(2))	F(M(2))	F(M(2))	F	
Economic Development																								
(4-19) Four-Lane Trunk System	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F

□ Not Applicable

F Full design level. See Chapter 440.

M Modified design level. See Chapter 410.

B Basic design level. See Chapter 410.

F/M Full for freeways/Modified for nonfreeway

DE Design Exception

EU Evaluate Upgrade

(1) Collision Reduction (HAL, HAC, PAL), or Collision Prevention (At-Grade Removal, Signaling & Channelization). Specific deficiencies that created the project must be upgraded to design level as stated in the matrix.

(2) Modified design level may apply based on a corridor or project analysis. See 325.03(5).

(3) If designated as UA acquired in the Access Control Tracking System, limited access requirements apply, if not, managed access applies. See 325.03(5).

(4) Full design level may apply based on a corridor or project analysis. See 325.03(5).

(5) For bike/pedestrian design see Chapters 1020 and 1025.

(6) Applies only to bridge end terminals and transition sections.

(11) See Chapter 1120.

(12) Impact attenuators are considered as terminals.

(14) Includes crossroad bridge rail. See Chapter 710.

(16) For design elements not in the matrix headings, apply full design level as found in the applicable chapters and see 325.03(2).

(19) The funding sources for bridge rail are a function of the length of the bridge.

(20) Consult programming personnel.

(21) Analyses required. See 325.03(5) for details.

(22) Upgrade barrier, if necessary, within 200 ft of the end of the bridge.

(23) See description of Guardrail Upgrades Project Type, 325.03(1) regarding length of need.

(25) For main line, use the Project Type row for Safety, Non-Interstate Freeway on Matrix 3 for NHS and on Matrix 5 for non-NHS.

↳ Project Type		Bridges (1)												Intersections				Barriers					
Design Elements	⇒	Horiz. Align.	Vert. Align.	Lane Width	Shdr. Width	Lat. Tran- sition	Median Width	Cross Slope	Shdr. Lane	Fill Ditch	Access Slopes (3)	Clear Zone (18)	Sign. Dels.	Basic Illumin.	Bike & Ped.	Lane Width	Shdr. Width	Vertical Structural Capacity	Turn Radii	Angle	IS Sight Dist.	Term. & Std. Section	Rail Run (19)
Preservation																							
Roadway																							
(5-1) HMA/PCCP																							
(5-2) BST																							
(5-3) BST Routes/Basic Safety																							
(5-4) Replace HMA with PCCP at I/S																							
Structures																							
(5-5) Bridge Replacement																							
(5-6) Bridge Repl. (Multilane)		M	F	M	M	F	M	F	M	F	F (2)	F (2)	F (2)	F (2)	F (2)	F	F	F (2)	F	F	F	F	
(5-7) Bridge Deck Rehab		F (2)	F (2)	F (2)	F (2)	F (2)	F (2)	F (2)	F (2)	F (2)	F (2)	F (2)	F (2)	F (2)	F (2)	F	F	F (2)	F	F	F	F	
Improvements (16)																							
Mobility																							
(5-8) Urban (Multilane)		F (2)	F (2)	F (2)	F (2)	F	F (2)	F (2)	F (2)	F (2)	F	F (2)	F	F	F	F	F	F (2)	F (2)	F	EUF	EUF	
(5-9) Urban		M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	F	F	F	
(5-10) Rural		M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	F	F	F	
(5-11) HOV		M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	F	F	F	
(5-12) Bike/Ped. Connectivity		(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	
Safety																							
(5-13) Non-Interstate F. Freeway		F (2)	F (2)	F (2)	F (2)	F (2)	F (2)	F (2)	F (2)	F (2)	F (2)	F (2)	F (2)	F (2)	F (2)	F	F	F (2)	F (2)	F	EUF	EUF	
(5-14) Intersection (1)		M (4)	M (4)	M (4)	M (4)	M (4)	M (4)	M (4)	M (4)	M (4)	M (4)	M (4)	M (4)	M (4)	M (4)	M (4)	M (4)	M (4)	M (4)	M (4)	M (4)	M (4)	
(5-15) Corridor (1)		M (4)	M (4)	M (4)	M (4)	M (4)	M (4)	M (4)	M (4)	M (4)	M (4)	M (4)	M (4)	M (4)	M (4)	M (4)	M (4)	M (4)	M (4)	M (4)	M (4)	M (4)	
(5-16) Median Barrier																							
(5-17) Guardrail Upgrades																							
(5-18) Bridge Rail Upgrades																							
(5-19) Risk Roadside																							
(5-20) Risk Sight Distance																							
(5-21) Risk - Roadway/Wall																							
(5-22) Risk - Realignment																							
Economic Development																							
(5-23) Freight & Goods (Frost Free) (6)		EUF	EUF	EUF	EUF	M	EUF	EUF	EUF	EUF	EUF	EUF	EUF	EUF	EUF	EUF	EUF	EUF	EUF	EUF	EUF	EUF	
(5-24) Rest Areas (New)		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	
(5-25) Bridge Restrictions		M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	
(5-26) Bike Routes (Shrds)		EUF	EUF	EUF	EUF	EUF	EUF	EUF	EUF	EUF	EUF	EUF	EUF	EUF	EUF	EUF	EUF	EUF	EUF	EUF	EUF	EUF	

- Not Applicable
- Full design level. See Chapter 440.
 - Modified design level. See Chapter 430.
 - Full for freeways/Modified for nonfreeway
 - Basic design level. See Chapter 410.
 - DE Design Exception
 - EU Evaluate Upgrade
- (1) Collision Reduction (HAL, HAC, PAL), or Collision Prevention (At Grade Removal, Signalization & Channelization). Specific deficiencies that created the project must be upgraded to design level as stated in the matrix.
- (2) Modified design level may apply based on a corridor or project analysis. See 325.03(5).
- (3) If designated as LIA, acquired in the Access Control Tracking System, limited access requirements apply. If not, managed access applies. See 325.03(5).
- (4) Full design level may apply based on a corridor or project analysis. See 325.03(5).
- (5) For bike/pedestrian design see Chapters 1020 and 1025.
- (6) Applies only to bridge and terminals and transition sections.
- (7) 4 ft minimum shoulders.
- (8) A weather structure can be achieved with spot digouts and overlay, modified design level applies to NHS highways and basic design level applies to non-NHS highways.
- (11) See Chapter 1120.
- (12) Impact attenuators are considered as terminals.
- (16) For design elements not in the matrix headings, apply full design level as found in the applicable chapters and see 325.03(2).
- (18) On managed access highways within the limits of incorporated cities and towns. City and County Design Standards apply to areas outside the curb or outside the paved shoulder where no curb exists.
- (19) The funding sources for bridge rail are a function of the length of the bridge. Consult programming personnel.
- (20) Applies to median elements only.
- (21) Analyses required. See 325.03(5) for details.
- (22) Upgrade barrier, if necessary, within 200 ft of the end of the bridge.
- (23) See description of Guardrail Upgrades Project Type, 325.03(1) regarding length of need.
- (26) Sidewalk ramps must be addressed for ADA compliance.
- See Chapter 1025.